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Procurement of Privately-Owned Passenger Cars Using In-House Resources

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by

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September, 1983

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Emission Control Technology Division
Office of Mobile Sources
U.S. Environmental Protection Agency

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ABSTRACT

This report describes the effort to procure 104 high mileage, in-use, privately-owned (1980-81) passenger cars for an exhaust emission testing project. This project, known as "EF-II", was conducted at EPA's Motor Vehicle Emission Laboratory (MVEL). The primary objective of this program was to measure regulated pollutants from a random sample of vehicles. The information gathered is being used to predict future emission levels from these categories of vehicles once they obtain the same mileage under more normal driving conditions. The secondary objective was the assessment of the feasibility of performing such a program without contracting for all or part of the work.

The test vehicles were selected from owners who lived within a 20 mile radius of MVEL. Names were chosen at random from the State Motor Vehicle Registration list. Direct mail solicitation was the primary method of contact. Telephone follow-ups were used to reach those vehicle owners who did not respond to the initial mailing. The first car was delivered for testing on April 12, 1982 and the program was completed on September 30, 1982.

Overall, the program was successful in showing that a large scale procurement activity can be performed using in-house resources. The positive features of this method include flexibility, speed, and close involvement. On the other hand, the cost savings in performing the program in-house were relatively minor in comparison to the difficulties involved in dealing directly with the public.

Although we would not recommend that this type of effort routinely be performed by government personnel, it could be much more effective than a contract for smaller programs of immediate need.

INTRODUCTION

In order to assess the most cost-effective method of obtaining privately-owned, in-use vehicles for testing at the Motor Vehicle Emission Laboratory, a vehicle procurement program was planned which would use only Federal employees and intramural funding. The purpose of this type of program was to determine the feasibility of such a method rather than using contracts, as have been used in the past for large scale Emission Factor programs. There were a number of significant problems encountered in this entirely in-house effort. Incentives, loaner cars, tune-up parts, and liability were the major ones. This report will provide an account of how these problems were solved.

PLANNING

A PERT chart (Figure 1) was prepared as the first step in the procurement process which gave the deadlines for each step in order to begin the program on schedule. There were two differences between this chart and the actual steps taken: one was that there was no advertising of the test program: solicitation was only done through mailings and phone calls. The other difference was that the registration lists were obtained from EPA's Manufacturers Operations Division. They obtain listings directly from the State of Michigan as part of their Recall Program. This saved both time and expense. The entire process proceeded as scheduled.

STAFFING

A staff was assembled using experienced personnel supplemented by temporary employees and student aids. A chart of the planned organization and a listing of the categories of personnel is shown by Figure 2. In the actual conduct of the program, the QC functions were performed by the Project Manager and his assistant, eliminating the need for those two positions. Moreover, the personnel assigned to this project were not always fully utilized and were often involved in other activities. Overall, each tested vehicle resulted in approximately 30 person-hours of effort, not including testing resources.

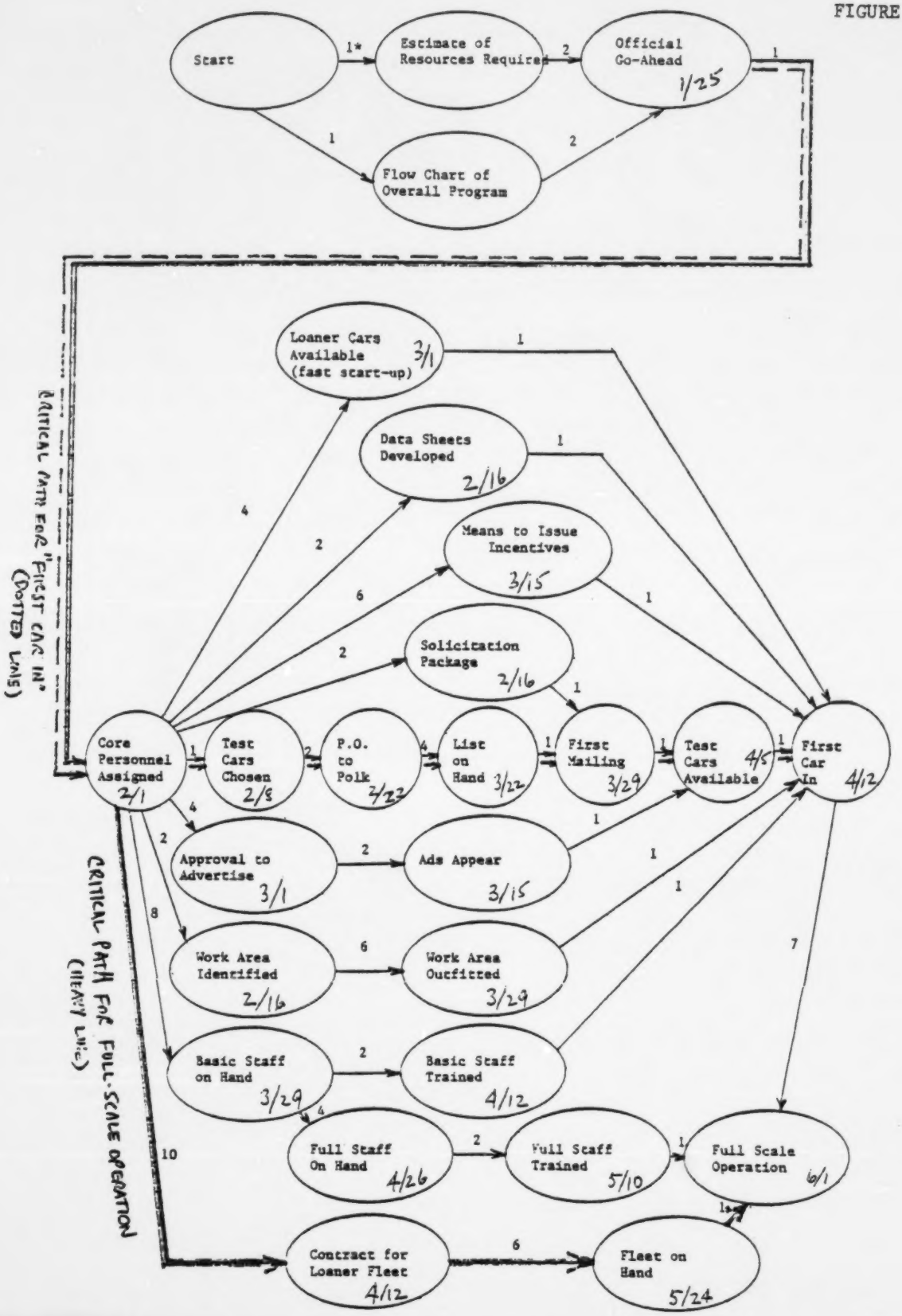
TEST VEHICLE SELECTION

Vehicles were first selected on a purely random basis within each model year. Other than safety related items, the only rejection criterion, was odometer reading. Vehicles from the 1980 model year were to have accumulated at least 40,000 miles. For 1981 models, the minimum was 25,000. This method eliminated the need to weight the sample by other selection criteria and simplified the procurement process. There was no need to fill certain cells by quotas. In order to maintain the maximum level of randomness possible, direct mail solicitation was used. Only candidates who had received one of the letters were eligible to participate. A copy of the solicitation letter and enclosures are contained in Appendices A, B, and C.

TEST VEHICLE PROCUREMENT FOR SP-II

PERT CHART

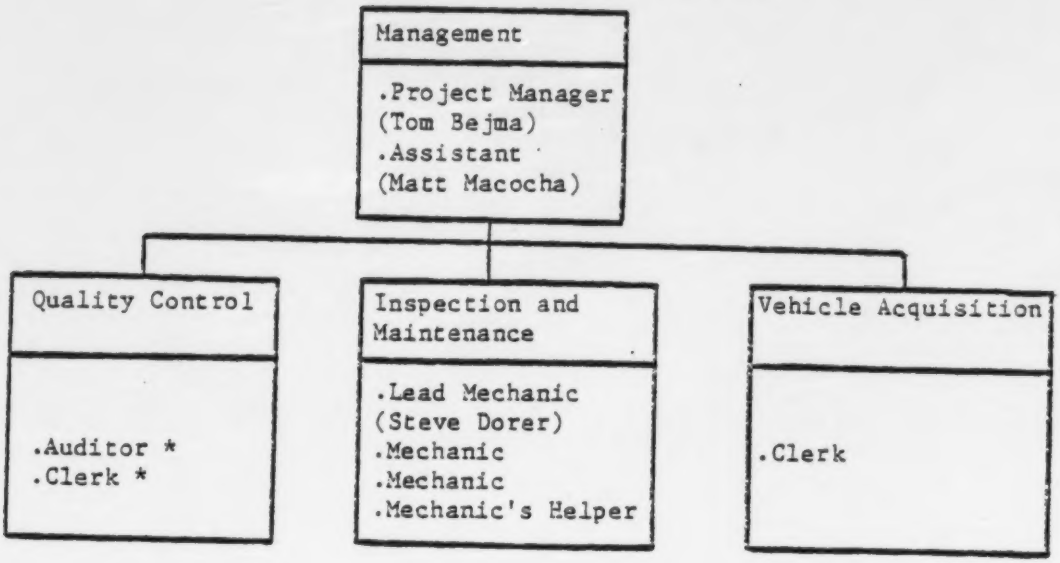
FIGURE 1


Start
Estimate of Resources Required
Official Go-Ahead 1/25
Flow Chart of Overall Program
Loaner Cars Available (fast start-up) 3/1
Data Sheets Developed 2/16
Means to Issue Incentives 3/15
Solicitation Package 2/16
Core Personnel Assigned 2/1
Test Cars Chosen 2/8
P.O. to Polk 2/22
List on Hand 3/22
First Mailing 3/29
Test Cars Available 4/5
First Car In 4/12
Approval to Advertise 3/1
Ads Appear 3/15
Work Area Identified 2/16
Work Area Outfitted 3/29
Basic Staff on Hand 3/29
Basic Staff Trained 4/12
Full Staff On Hand 4/26
Full Staff Trained 5/10
Full Scale Operation 6/1
Contract for Loaner Fleet 4/12
Fleet on Hand 5/24
CRITICAL PATH FOR "FIRST CAR IN" (DOTTED LINES)
CRITICAL PATH FOR FULL-SCALE OPERATION (HEAVY LINES)

TEST VEHICLE PROCUREMENT FOR EF-II

FIGURE 2

PROPOSED ORGANIZATION CHART



LISTING OF PERSONNEL

Position	Job Title	GS Level	Appointment	Hours
Project Manager	Engineer or Technician	13	PFT	1560
Assistant	Engineer or Technician	7-11	PFT	1560
QC Auditor	Engineer or Technician	5 - 9	TFT	1040
QC Clerk	Technician	3 - 5	TFT	1040
Lead Mechanic	Technician	9 or 10	PFT	430
Mechanic	Technician	9	TFT	1040
Mechanic	Technician	9	TFT	870
Mechanic's Helper	Student Aide	1	TFT	1040
Procurement Clerk	Clerk or Clerk/Typist	3,4 or 5	TFT	1040

*These two positions were not required in the actual conduct of the program.

INCENTIVES

A schedule of incentives was devised which was thought to provide the maximum response to the program. Owners of eligible vehicles were offered the following: 1) computerized tune-up of their vehicle, 2) a full tank of gas upon return of the vehicle, 3) the results of the fuel economy and emission tests, and 4) either a check for $25 per day for each day the vehicle was in this test facility or a check for $10 per day plus a loaner vehicle. However, in each case, the maximum cash value of the incentive was listed as $150.

The tune-up appeared to enhance the response rate, as evidenced by the comments of various owners. For an average cost of $35 per vehicle, it was a small cost relative to the overall incentive cost of $140 per vehicle. The purchasing of the tune-up parts was accomplished through the use of "blanket purchase order agreements" and supplemented with "petty cash".

Payment of cash incentives was accomplished through the use of Government checks. Cash transactions are very difficult for the government due to the monumental amounts of security and bookkeeping required. Originally it was thought that issuing checks would be a problem also. However, very few complaints were received from participants even though it took from four to six weeks after their vehicles were returned before they received their checks. To issue Government checks, purchasing approval authority was provided to the Program Manager and to the Project Manager up to a maximum of $250. With this approval, the checks were requisitioned from the Cincinnati Accounting Office through the use of SF-44's. The only difficulty encountered was the late mailing of several checks due to a misunderstanding at the accounting office in Cincinnati where the checks originated. Appendix D is a summary of the total incentive costs of the program. This includes parts cost, incentive payments, and gas costs.

In April 1982, the following vehicles were leased from Sample Enterprises for use as loaners: 1981 Mercury Lynx, 1981 Ford Fairmont, and 1981 Dodge Omni. On July 1, EPA's Operational Characteristics Survey (OCS) study provided two addditional loaner vehicles. Each was equipped with instrumentation to measure different parameters of vehicle operation. These two cars, a 1981 Chevette and a 1981 Oldsmobile Cutlass Supreme, were also leased from Sample Enterprises. Since the drivers of these vehicles were required to perform some additional tasks related to the study, $20 was offered as additional incentive. In mid-July, two additional loaner cars, a 1981 Malibu Classic and 1981 Grand Prix, were leased from Budget Rent-A-Car. These vehicles were necessary because of the need for additional and larger vehicles, comparable to the large vehicles which participants brought in for testing. Thus, for most of the program there was a fleet of seven loaner cars.

Each of the loaner vehicles was fully insured by the lessor. The government is a self-insured entity and was responsible for any and all damage to participants' vehicles while in its possession. Each vehicle

was equipped with an automatic transmission and air conditioning. Most were four door models. Some minor damage to several of the participants vehicles was taken care of to their satisfaction. No damage occurred to any of the loaner vehicles during this program.

PROCUREMENT TECHNIQUES

Over a 3-month period, March 29 to June 9, a total of 1200 solicitation packages were mailed to owners of 1980 and 1981 automobiles. This represented a random sample of 1980 and 1981 vehicles registered in Washtenaw, Wayne, and Livingston Counties. Because this program was accepting only high-mileage vehicles, this sample size of 1200 was chosen based on an estimate that 1 in 10 vehicles would have accumulated the minimum number of miles at the time of testing. The solicitation package included an introductory letter, a list of questions and answers about the program, and a postpaid reply card with which an owner could respond to report his willingness to participate. Figure 3 is a flow chart of the process.

The postage paid reply card offered five responses for the vehicle owner: 1) Yes, my vehicle has accumulated over 40,000/25,000 miles and I am interested, 2) Unfortunately, my vehicle has not accumulated over 40,000/25,000 miles. However, I might be willing to participate in future test programs., 3) Sorry, I have chosen not to participate, 4) I would like more information, 5) I no longer own the vehicle.

The overall response rate for this test program was 88%. Figure 4 indicates the response rate for each method of procurement, i.e., initial mailing, second mailing and phone calls. Over 50% of the responses were received within the first two weeks of each mailing. Of these initial responses, 13.5% indicated they had accumulated the appropriate mileage and that they were willing to participate in our testing program. The majority of the vehicle owners (54.7%), expressed an interest in the program but had not accumulated the appropriate mileage. There were 12.2% who chose not to participate. Very few vehicle owners (3.5%) requested more information while 11.6% responded that they no longer owned the vehicle. Six percent of the letters were returned as undeliverable.

Figure 5 is a piechart which categorizes the responses for the initial mailings. From a total of 1200 letters mailed to vehicle owners, only three postcards were returned with negative remarks about the testing program and/or the EPA. Two weeks after the letters were sent out, a second mailing was sent to the vehicle owners who had not responded and whose telephone numbers were not listed. This mailing resulted in responses from an additional 19%. Thus, the total response rate for mailings was 69%. Figure 6 is a cumulative graph of responses versus time.

FIGURE 3

VEHICLE SOLICITATION PROCEDURES FOR EF-II

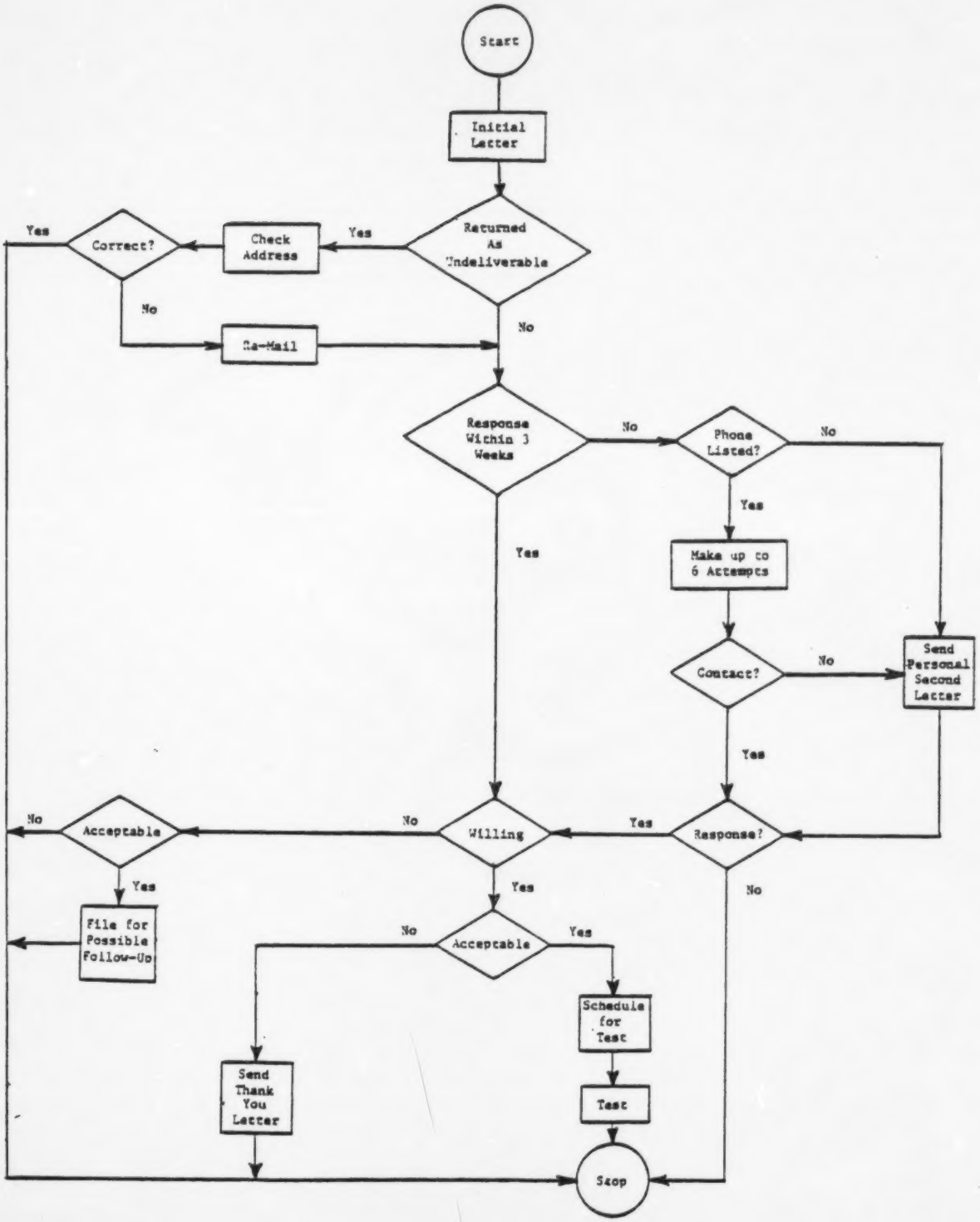
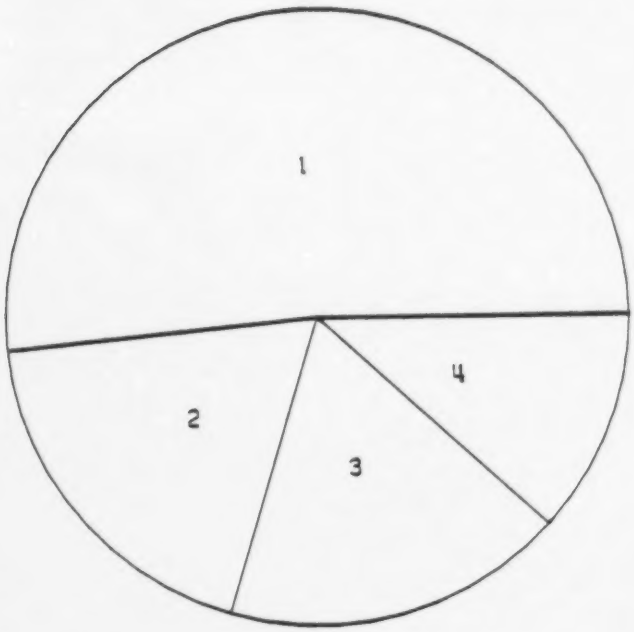


FIGURE 4

RESPONSE RATES-EFII



1 INITIAL MLNG-52%

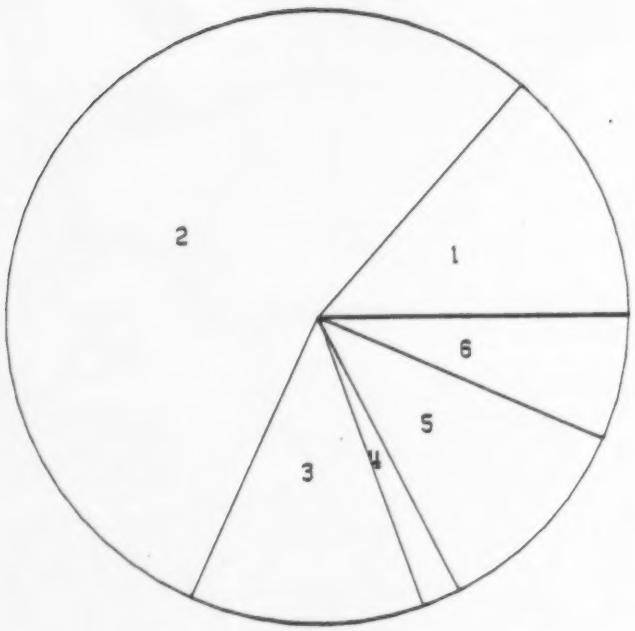
2 SECOND MLNG-19%

3 PHONE CALLS-18%

4 UNABLE TO CONTACT-12%

FIGURE 5

PROFILE OF TOTAL RESPONSES



1 ELIGIBLE-13.5%

2 INELIGIBLE-54.7%

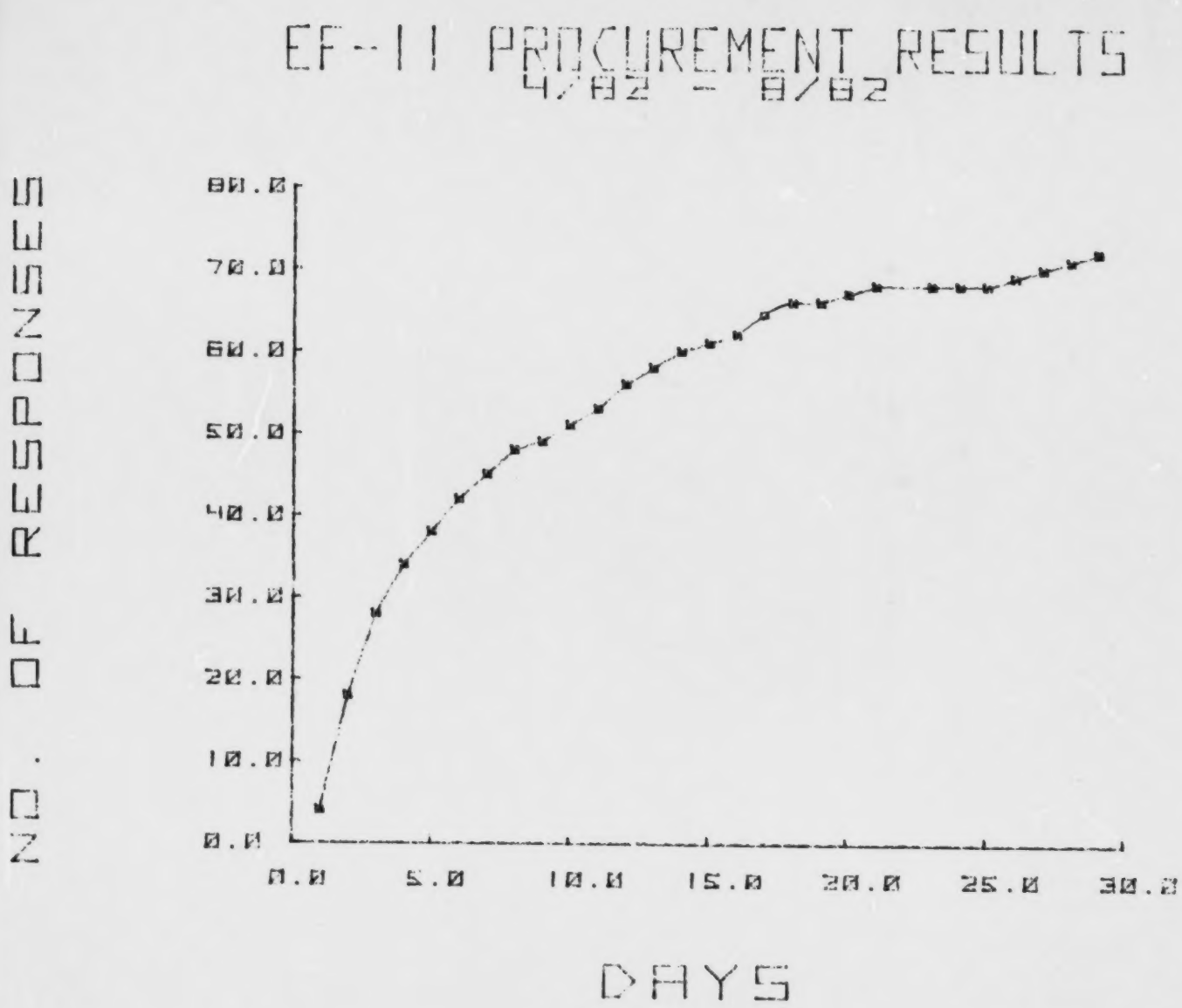
3 NOT INTERESTED-12.2%

4 REQUEST INFO.-2.0%

5 NO LNGR OWN VEHICLE-10.0%

6 UNABLE TO CONTACT-12.0%

FIGURE 6


EF-11 PROCUREMENT RESULTS
4/82 - 8/82
NO. OF RESPONSES
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
DAYS

In addition to the two mailings, phone calls were made to the vehicle owners who had not responded or who could not be contacted through the mail. This solicitation resulted in a response rate of 18%. Figure 7 presents the results of the phone contacts. Finally, a list was compiled of those cars which had not accumulated the appropriate mileage but could possibly accumulate it prior to the completion of our test program. Thus, the profile of the total responses for the EF-II test program is as follows: 10% were interested in participating and, had accumulated the appropriate mileage, 49.5% percent were interested in our test program but had not accumulated the appropriate mileage, 15% were not interested in participating in the test program, 3.5% required more information, 10% no longer owned the correct vehicle, and 12% were not able to be reached either by mailings or phone calls. Figure 8 illustrates the total response profile.

Once the eligibility of a particular vehicle was established, the owner was asked to bring his vehicle to MVEL. A meeting was scheduled at his convenience. At this meeting, the owner was asked to complete a questionnaire and sign a contract to exchange the vehicles (Appendix E). Loaner vehicles were provided if the owner requested. Test vehicles were brought in at a rate of 4 per week with an average time from pick up to return of 7.0 days. A total of 104 cars were brought in for testing. Four of the exchanges of cars took place at the owner's residence, while the remaining exchanges occurred at MVEL. Both the loaners and test vehicles were washed and refueled before they were given to the participants. The majority of the meetings were successful although there was some difficulty with cancellations or late arrivals.

PARTICIPANT PROFILE

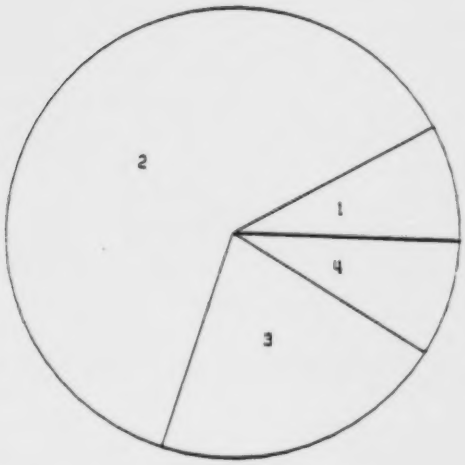
Due to the fact that the testing program sought only high mileage vehicles, it was found that the majority of the vehicle owners commuted long distances to work or used the vehicle for business, i.e. sales. Almost all of the vehicles were predominantly driven on city expressways. Approximately 3/4 of the vehicle owners claimed they maintained the vehicles in accordance with manufacturer's recommendations. Almost all of the owners expressed concern for the fuel economy and half kept detailed records of their fuel usage. The majority of the owners were satisfied with their vehicle's engine performance, although some had experienced major problems with carburetors, transmissions, etc. Several vehicles had to have major repairs done while in our test program. In general, these repairs involved replacement of faulty parts which were covered under the emission warranty or recalls for which the owners had neglected to have the work performed.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the program was successful in showing that a large scale procurement activity can be performed using in-house resources. The positive features of this method include flexibility, speed, and close

FIGURE 7

PROFILE OF RESPONSES TO PHONE CALLS FOR EF-II



1 ELIGIBLE-8.3%

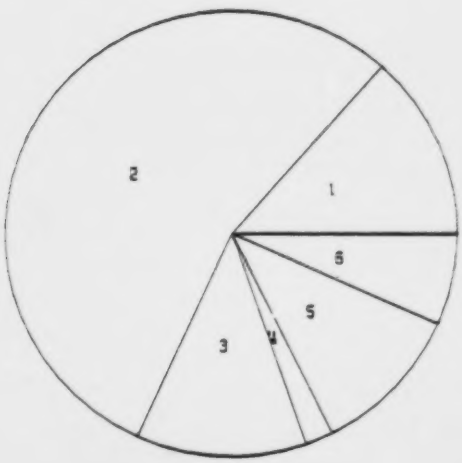
2 INELIGIBLE-61.7%

3 NOT INTERESTED-21.0%

4 NO LNGR OWN VEHICLE-8.3%

FIGURE 8

PROFILE OF TOTAL RESPONSES



1 ELIGIBLE-13.5%

2 INELIGIBLE-54.7%

3 NOT INTERESTED-12.2%

4 REQUEST INFO.-2.0%

5 NO LNGR OWN VEHICLE-10.0%

6 UNABLE TO CONTACT-12.0%

involvement. On the other hand, the cost savings in performing the program in-house were relatively minor in comparison to the difficulties involved in dealing directly with the public. The absolute savings cannot be accurately determined due to the number of support personnel used at various times during the program, e.g., the purchasing department staff and resources, and significant overhead items such as phone, copy machine, office supplies, etc.

While this effort was ultimately successful, it pointed out the rigidity of the bureaucratic process. There can be a great deal of "red tape" involved with simple tasks such as printing of forms. In addition, we have to worry about "freezes" on certain actions, having the work done only at specific locations, keeping below a certain dollar amount, etc. Although we would not recommend that this type of effort routinely be performed by government personnel, this type of effort could be much more effective than a contract for smaller programs of immediate need.

APPENDIX A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ANN ARBOR, MICHIGAN 48105

September 2, 1982

OFFICE OF
AIR, NOISE AND RADIATION

Debbie K. Zeeb
5370 Earhart Road
Ann Arbor, MI 48105

Dear Vehicle Owner:

As I am sure you are aware, the nation's air pollution problem is a very serious matter. You may be able to contribute significantly toward its improvement and be rewarded for your cooperation. The U.S. Environmental Protection Agency (EPA) is currently involved in a number of programs to reduce air pollution. One of these is to determine the emissions from in-use passenger cars to assess how effective our current pollution control regulations are, and to see if any refinements to these regulations are warranted. This testing will be conducted at EPA's Motor Vehicle Emission Laboratory in Ann Arbor.

Your 1980 vehicle has been randomly selected from registration lists as a candidate for testing. If you are willing to participate, we will further consider your vehicle on the basis of the information you provide on the enclosed postcard. Once we obtain the information on the accumulated miles of your vehicle, we can randomly select a sample for testing. Should your vehicle be chosen, we will contact you to schedule the test at your convenience and offer you the following incentives:

1) Your vehicle will be tuned to manufacturer's specifications using computerized diagnostic equipment.

2) It will be returned with a full tank of fuel.

3) You will receive the results of the emission and fuel economy tests.

4) You will be sent a check in the amount of $25 per day (up to a maximum of $150) for each day your vehicle is being tested. If you wish, we will provide you with a late model, fully insured loaner car. In this case, the amount of the check will be $10 per day.

No unusual operations will be performed on your vehicle and it will be fully insured for the entire test period. The testing will be conducted in our laboratory under simulated driving conditions. The tests will take 4 to 7 days to complete due to the need to stabilize the vehicle temperature before each test by parking it overnight in the laboratory so

that we can measure normal start-up emissions. Your vehicle will probably accumulate less than 200 total miles. We would be happy to show you our laboratory and how the testing is conducted, if you are interested.

For this particular test program, we are planning to test only vehicles with over 40,000 miles. However, even if your car has less than 40,000 miles, it is very important to the statistical accuracy of our study and to assure that we do not follow-up with additional reminders, that you complete and return the enclosed postpaid reply card at your earliest convenience. A list of the questions most commonly asked about this program is also enclosed. If you have additional questions or would like any further information, please check the appropriate box on the postcard or contact Rosemarie Demyan of my staff at 668-4416.

Thank you for your cooperation. Your willingness to participate is important to the accuracy of our study. I am looking forward to your reply.

Sincerely,

Ralph C. Stahman

Ralph C. Stahman, Chief
Test and Evaluation Branch

APPENDIX B

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MOTOR VEHICLE EMISSION TESTING PROGRAMS

Questions and Answers

1. Must I participate in this program?

   No, your cooperation in this program is completely voluntary. If, for any reason, you decide not to participate, please let us know on the enclosed postpaid reply card.

2. Why should I participate?

   In addition to the loaner vehicle (or $25 per day), and a full tank of gasoline, your participation will benefit you indirectly by helping EPA understand and improve the quality of the air in and around your city.

3. How long will the test program take?

   The test program takes approximately 1 to 2 weeks. The length of time is dependent on the number of tests required and how many other cars are being tested.

4. Will my vehicle be mistreated in any way?

   No, every aspect of the test program has been designed to duplicate everyday operation.

5. Exactly what will be done to my vehicle?

   An underhood inspection and routine maintenance, if necessary, will be performed prior to each test. The vehicle must be completely cooled off before the test can begin. This requires that the vehicle not be started for 12 to 36 hours to simulate overnight parking. Once the vehicle is sufficiently cooled off, it will be pushed onto a dynamometer. Although the vehicle doesn't actually move during the test, the dynamometer is a type of treadmill which simulates conditions which would normally be encountered on the road. A hose is connected to the exhaust pipe to collect the exhaust. A specially trained driver then starts the vehicle and "drives" it through a "driving cycle" which represents typical operation in urban, suburban and rural areas. Throughout this time, a portion of the exhaust gases is collected for subsequent analysis. This analysis allows us to calculate the quantity of exhaust emissions emitted by your vehicle. Values for the city and highway fuel economy are also calculated. Typically 2 to 3 of these test sequences will be performed on your car.

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6. How many miles will my vehicle be driven during the program?

   Your vehicle will be driven approximately 100 odometer miles during the testing. The majority of these miles will be accumulated indoors on the dynamometer. A 10 minute road test might precede the dynamometer testing.

7. How will my vehicle be protected while in EPA's possession?

   In addition to providing insurance, we will store your vehicle indoors while the testing is being conducted. If required to be parked outside, your vehicle will be located in a locked and secure area at the EPA Motor Vehicle Emission Laboratory.

8. What happens to the information obtained from my vehicle?

   The information collected as a result of this program is used to determine the emissions performance of in-use vehicles and its effect on air quality. The data from your vehicle are combined with data from other vehicles in this area in order to obtain a statistically valid sample.

9. How can I obtain the results from the testing of my vehicle?

   If you request, after the completion of the testing you can obtain the results on your vehicle. We will forward them to you as soon as all the data have been processed.

10. What happens if my vehicle fails to meet any emission standards?

    We expect that a certain proportion of the vehicles will fail to meet one or more of the emission standards. However, none of the information collected from this program will be used against individual vehicle owners.

APPENDIX C

☐ Yes, my vehicle has accumulated over 40,000 miles and I am interested.

☐ Unfortunately, my vehicle has not accumulated 40,000 miles. However, I might be willing to participate in future programs.

☐ Sorry, I have chosen not to participate

☐ I would like more information

☐ I no longer own this 1980 vehicle.

Telephone_____/ Best time to call_____

EPA

Official Business
Penalty for Private Use
$300

Postage and
Fees Paid
Environmental
Protection
Agency
EPA 335

United States
Environmental Protection
Agency

EPA, MVEL, ECTD, TEB-13
2565 Plymouth Road
Ann Arbor, MI 48105

EPA FORM 1320-6A (2-79)

APPENDIX D

Direct Costs on a Per Vehicle Basis
EF-II

				Tune-up Costs	Cash Incentive	Gas(b) Incentive	Total
401	1980	Mercury	Marquis	$14.00	$125.00(a)	$13.87	$152.87
402	1980	Ford	Fiesta	13.66	40.00	19.47	73.13
403	1980	Chevrolet	Malibu	109.39	80.00	22.90	212.29
404	1980	Plymouth	Duster	18.43	80.00	21.09	119.52
405	1980	Buick	Skylark	12.47	30.00	23.94	66.41
406	1980	Chevrolet	Citation	10.66	60.00	19.48	90.14
407	1980	Oldsmobile	98	41.56	50.00	22.04	113.60
408	1980	Ford	LTD	10.91	30.00	22.56	61.47
409	1980	Toyota	Corolla	81.99	100.00(a)	6.86	188.85
410	1980	Chevrolet	Citation	19.23	50.00	19.09	88.32
411	1980	Ford	Thunderbird	10.59	40.00	14.50	65.09
412	1980	Chevrolet	Citation	5.00	75.00(a)	7.58	87.58
413	1980	Lincoln	Versailles	12.12	70.00	19.47	101.59
414	1980	Ford	Mustang	33.35	100.00(a)	6.18	139.53
415	1980	Honda	Accord	19.33	100.00(a)	9.03	128.36
416	1980	Pontiac	Phoenix	23.92	80.00	17.00	120.92
417	1980	Ford	Fairmont SW	57.44	125.00(a)	10.64	193.08
418	1980	Oldsmobile	Cutlass	23.06	100.00(a)	7.79	130.85
419	1980	Chevrolet	Camaro	39.39	50.00	19.37	108.76
420	1980	Chevrolet	Citation	55.99	80.00	14.24	150.23
421	1980	Plymouth	Horizon	22.41	90.00	13.87	126.28
422	1980	Chevrolet	Chevette	8.15	110.00(d)	7.12	125.27
423	1980	Ford	Fairmont SW	9.34	60.00	17.48	86.82
424	1980	Ford	Fairmont SW	9.34	60.00	26.81	96.15
425	1980	Datsun	300 SX	25.35	80.00	12.91	118.26
426	1980	Ford	Fairmont SW	32.87	90.00(d)	20.71	143.58
427	1980	Chevrolet	Citation	17.25	90.00	20.61	127.86
428	1980	Toyota	Tercel	8.24	50.00	7.41	65.65
429	1980	Buick	Century	16.95	80.00	19.38	116.23
430	1980	Ford	LTD	35.37	100.00(a)	11.02	146.39
431	1980	Buick	Century	20.61	100.00(a)	10.35	130.96
432	1980	Chevrolet	Chevette	5.00	150.00	13.08	168.08
433	1980	Chevrolet	Citation	5.00	125.00(a)	4.75	134.75
434	1980	Chrysler	LeBaron	28.55	100.00(a)	13.30	141.85
435	1980	Ford	Fiesta	5.00	150.00(a)	6.37	161.37
436	1980	Mercury	Zephyr	31.61	125.00(a)	10.17	166.78
437	1980	Chevrolet	Chevette	31.50	130.00	13.49	174.99
438	1980	Chevrolet	Chevette	19.61	80.00	17.86	117.47
439	1980	Pontiac	Phoenix	80.92	80.00	18.15	179.07
440	1980	Chevrolet	Citation	8.15	50.00	14.20	72.35
441	1980	Chevrolet	Citation	31.34	50.00	21.00	102.34
442	1980	Pontiac	Sunbird	71.04	120.00	19.20	210.25
443	1980	Chevrolet	Citation	5.00	150.00(a)	8.36	163.36
444	1980	Dodge	Omni	5.00	100.00(a)	8.65	113.65
445	1980	Chevrolet	Chevette	31.50	70.00	20.53	122.03
446	1980	Ford	Fairmont	31.61	150.00(a)	7.79	189.38
447	1980	Chevrolet	Citation	15.89	50.00	19.96	85.85
448	1980	Chevrolet	Citation	12.47	100.00(a)	7.98	120.45
449	1980	Chevrolet	Chevette	5.00	60.00(d)	8.84	73.84
450	1980	Dodge	Omni	28.16	80.00	17.22	125.38

Direct Costs on a Per Vehicle Basis (Con't.)
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				Tune-up Costs	Cash Incentive	Gas(b) Incentive	Total
451	1981	Ford	Escort	12.12	50.00	21.66	83.78
452	1981	Buick	Regal	9.39	70.00	19.95	99.34
453	1981	Chevrolet	Monte Carlo	9.99	75.00(a)	14.16	99.15
454	1981	Mercury	Lynx	24.26	75.00(a)	9.31	108.57
455	1981	Ford	Granada	9.34	100.00(a)	10.26	119.60
456	1981	Ford	Escort	29.55	70.00	13.96	113.51
457	1981	Dodge	Colt	39.99	125.00(a)	5.68	170.67
458	1981	Jeep	Wagoneer	57.36	75.00(a)	13.02	145.38
459	1981	Mercury	Lynx	23.47	70.00	13.77	107.24
460	1981	Chevrolet	Citation	9.39	100.00(a)	10.17	119.56
461	1981	Toyota	Corolla SW	9.52	40.00	18.62	68.14
462	1981	Chevrolet	Camaro	437.53(c)	110.00	17.85	565.38
463	1981	Chevrolet	Caprice	12.30	70.00	17.47	97.87
464	1981	Chevrolet	Monte Carlo	17.57	30.00	21.66	69.23
465	1981	Dodge	Aries	11.00	70.00	15.67	96.67
466	1981	Ford	Escort	25.34	60.00	12.06	97.40
467	1981	Oldsmobile	Cutlass SW	12.60	90.00	23.97	126.57
468	1981	Mercury	Cougar	9.86	70.00	16.62	96.48
469	1981	Chevrolet	Monte Carlo	36.28	180.00(a)	19.10	235.38
470	1981	Plymouth	Horizon	31.64	100.00(d)	19.38	151.02
471	1981	Chevrolet	Citation	33.19	150.00(a)	9.67	192.86
472	1981	Toyota	Corolla	9.52	60.00(d)	23.74	93.26
473	1981	Chevrolet	Chevette	567.61(e)	125.00(a)	6.27	698.88
474	1981	Oldsmobile	Omega	12.47	30.00	13.49	55.96
475	1981	Plymouth	Horizon	26.81	150.00(a)	7.41	184.22
476	1981	Datsun	210	8.66	30.00	16.05	54.71
477	1981	Chevrolet	Monte Carlo	31.66	100.00	9.89	141.55
478	1981	Buick	Century	21.81	40.00	18.53	80.34
479	1981	Plymouth	Reliant	21.72	150.00(a)	5.80	177.52
480	1981	Ford	Escort	184.00	130.00	22.61	336.61
481	1981	Oldsmobile	98	31.25	90.00	24.51	145.76
482	1981	Pontiac	Phoenix	8.15	150.00(a)	8.65	166.80
483	1981	Buick	Skylark	36.08	90.00	14.63	140.71
484	1981	Dodge	Omni	37.00	90.00	19.00	146.00
485	1981	Ford	Mustang	5.00	100.00(d)	11.02	116.02
486	1981	Ford	Escort	46.49	125.00(a)	6.27	177.76
487	1981	Mercury	Lynx	21.02	140.00	7.51	168.53
488	1981	Plymouth	Horizon	25.07	90.00	8.45	123.52
489	1981	Pontiac	Grand Prix	34.68	90.00	24.03	148.71
490	1981	Oldsmobile	98	33.65	70.00	26.40	130.05
491	1981	Plymouth	Reliant	21.78	90.00	22.04	133.82
492	1981	Plymouth	Horizon	25.27	50.00	21.94	97.21
493	1981	Ford	LTD	37.05	70.00(d)	22.51	129.56
494	1981	Chevrolet	Chevette	9.26	100.00(a)	7.22	116.48

Direct Costs on a Per Vehicle Basis (Con't.)
EF-II

				Tune-up Costs	Cash Incentive	Gas(b) Incentive	Total
495	1981	Chevrolet	Chevette	8.00	130.00	13.30	151.30
496	1981	Ford	Escort	22.99	90.00	18.77	131.76
497	1981	Dodge	Omni	20.57	130.00	17.96	168.53
498	1981	Ford	Escort	23.01	150.00(a)	7.22	180.23
499	1981	Dodge	Aries	25.58	80.00	20.52	125.83
500	1981	Chevrolet	Chevette	8.15	60.00(d)	7.60	75.75
601	1980	Dodge	Omni	31.50	110.00	19.80	161.30
651	1981	Pontiac	Grand Prix	11.43	90.00	19.20	120.63
652	1981	Dodge	Omni	27.00	150.00(a)	8.93	185.93
653	1981	Chevrolet	Citation	16.04	100.00	19.24	135.28
		Total Cost (80 & 81)		$3598.64	$9325.00	$1558.19	$14,465.19
		Avg. Cost (80 & 81)		$34.60	$89.64	$14.98	$139.09

(a) These vehicles were provided to us without the need for a loaner vehicle.

(b) Cost of gas is actual cost to EPA - $.95 per gallon (includes loaner gas cost).

(c) $394.00 in parts supplied by General Motors (ECM, Cat Conv., EGR Valve, Spark Plug Wires)

(d) These owners participated in the OCS Project. They received an instrumented loaner vehicle and an additional $20.00 cash incentive.

(e) $550.00 in parts supplied by General Motors (closed-loop carburetor).

APPENDIX E

Vehicle Test Agreement

The U.S. Environmental Protection Agency (EPA) is furnishing you a _____ as a temporary replacement for your _____.

This agreement is subject to the following terms and conditions:

1. You agree to be careful in the use of the loan vehicle and to return it to an EPA representative within seven days together with all tires, tools, and accessories and in as good interior, exterior, and operating condition, normal wear and tear excepted, as when it was received by you.

2. You also agree that it will not be used to carry passengers or property for hire or to push or tow any vehicle or trailer.

3. You acknowledge personal liability for all charges, fines, and costs for parking, traffic, or other legal violations assessed against the loan vehicle while it is in your possession.

4. You agree to release and hold EPA harmless from any liability for loss of, or damage to, any property left, stored or transported in this vehicle by you or any other person during or following the term of this agreement.

5. You agree to allow EPA to perform any repairs or maintenance on your vehicle provided that such actions are conducted in accordance with the manufacturer's recommendations and specifications.

6. EPA, in turn, agrees to be fully responsible for any and all damage occurring to your vehicle while in EPA's possession.

7. EPA also agrees to indemnify and hold you harmless of any repairs, damage, loss or liability sustained by you by reason of accident or damage to your vehicle while in EPA's possession.

8. EPA further agrees to be careful in the use of your vehicle and agrees to return it to you in as good interior, exterior, and operating condition as when it was received by EPA except for normal wear and tear.

In consideration of this loaner vehicle and $10 per day (up to a maximum of $150) while my vehicle is being tested, I agree to loan it to EPA for this test program.

Age _____ Driver license # _____

Owner's signature: _____ Date: _____

EPA Representative: _____ Date:

Vehicle Test Agreement

This agreement is subject to the following terms and conditions:

1. EPA agrees to be fully responsible for any and all damage occurring to your vehicle while in EPA's possession.

2. EPA also agrees to indemnify and hold you harmless of any repairs, damage, loss or liability sustained by you by reason of accident or damage to your vehicle while in EPA's possession.

3. EPA further agrees to be careful in the use of your vehicle and agrees to return it to you in as good interior, exterior, and operating condition as when it was received by EPA except for normal wear and tear.

4. You agree to allow EPA to perform any repairs or maintenance on your vehicle provided that such actions are conducted in accordance with the manufacturer's recommendations and specifications.

In consideration of $25 per day (up to a maximum of $150) while my vehicle is being tested, I agree to loan it to EPA for this test program.

Owner's signature: _____ Date: _____

EPA Representative: _____ Date: _____